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Animal Welfare Information Center

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CONGRESS IN SESSION

by Cynthia Smith

- **H.R. 5222 To provide for non-animal acute toxicity testing by the Federal Government.**

Introduced October 6, 1994, by Tom Lantos (D-CA) and referred to the Committee on Energy and Commerce. This act may be cited as the "Consumer Products Safe Testing Act."

The Congress finds that: non-animal acute toxicity tests have been developed in recent years that have shown a level of reliability sufficient for the reduction or replacement of animal acute toxicity tests, such as the Draize test, for many products regulated by the Federal Government; the Federal Government has discouraged the use of these alternatives through regulations that mandate or encourage the use of animal acute toxicity tests, or by not prescribing other, less costly, more accurate and humane alternatives; many manufacturers are reluctant to use nonanimal

(cont'd p.10)

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Increasing Welfare of Laboratory Rats With the Help of Spatially Enhanced Cages

by

*A.J. Anzaldo, University of Illinois, Urbana-Champaign (UIUC),
P.C. Harrison, UIUC, G.L. Riskowski, UIUC, L.A. Sebek, UIUC,
R-G. Maghirang, UIUC, W.R. Stricklin, University of Maryland, College Park, MD,
and H.W. Gonyou, Prairie Swine Center, Inc., Saskatoon, Saskatchewan*

Introduction

The general public is increasingly becoming concerned with the welfare of animals used in research. This concern is well justified in an era of booming technology and of using animals to help solve unanswered questions. A major concern of many people is the housing and living conditions laboratory animals must endure while undergoing experimentation, including space allowed for each animal when housed in a group. As researchers, concerned and appreciative of our animals' needs, we continue to search for what is "best" or "optimal" for their living space. Dawkins (1980) argued that the animals' perception of their environment or subjective experience is the essential component of welfare. Dawkins also (1990) supported the idea of using preference tests to "ask the animals" which environment is best for them. We were able to take Dawkins' ideas and do just that, ask the laboratory rats where they preferred to live. Remarkably, we found that "bigger is not always better." Improving the design of caging may be a means of achieving high-density housing of laboratory rats while obtaining the level of welfare the Public Health Service (PHS)-National Institutes of Health (NIH) guidelines are intended to ensure. Thus, it could be possible

to house rats in less area, when needed in certain circumstances, provided the living space is of better quality. For example, physical space available to house animals in the National Aeronautics and Space Administration space station research modules will often be limited, and adherence to PHS guidelines for floor space would severely limit the animal research program. However, taking into account behavioral as well as physiological needs of laboratory rats, two alternative cages were designed and tested.

Cage Design

The two cage designs selected were the high perimeter (HP) spatially enhanced cage (SpEC) and the 3-D (3-D) SpEC. The inside dimensions of both SpEC's were 305 mm wide, 432 mm long, and 330 mm high; the distance from floor to wire top was 203 mm (figure 1). Based on the 1985 NIH *Guide to the Care and Use of Laboratory Animals*, each cage can house six 300 gram rats or three 600 gram rats. The two cage designs are discussed below.

High-Perimeter SpEC

Rats and some other animals, such as cattle (Stricklin et al., 1979), guinea pigs (White et al., 1989), and pigs (Weigand and Gonyou, un-

published data), are thigmotactic (edge-users). These animals tend to "shy away" from the center of barren cages. Instead they prefer to spend most of

cage. These platforms ran the length of the cage with the exception of 76 mm on either end. Two interior walls provided support for the platforms and

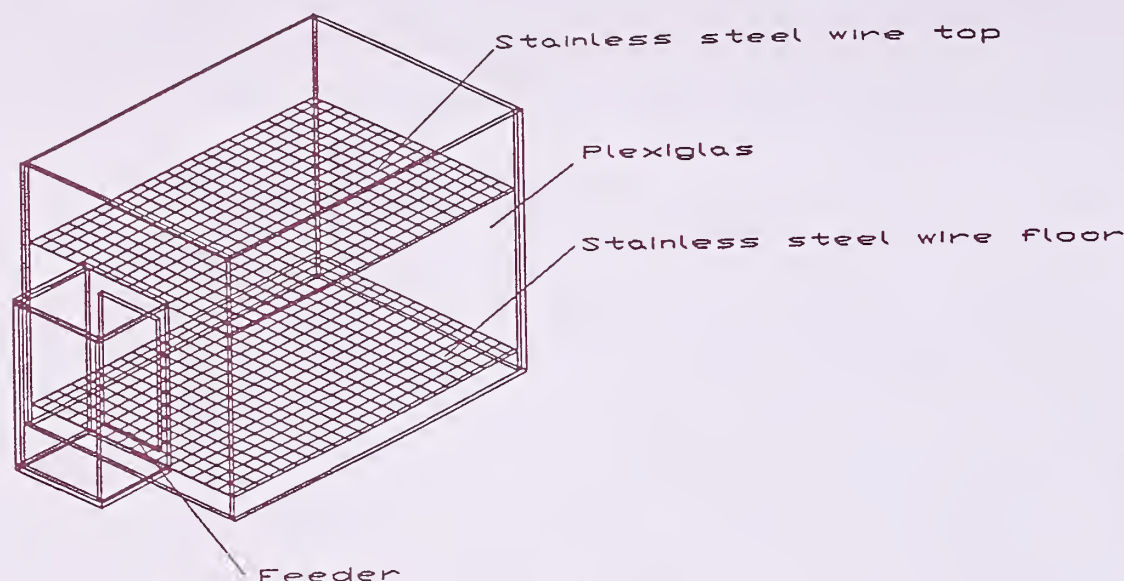


Figure 1. Diagram showing the shell of the spatially enhanced cage (SpEC). Floor and top are stainless steel welded wire mesh. Walls are 6.4-mm thick Plexiglas. Interior partitions are not shown.

their time in contact with surrounding walls of the cage, seldom using the floor space available in the center. Chamove (1989) found that weight gain in mice could be increased by adding vertical cage dividers and increasing the wall surface area available for contact. Thus, with the support of this growth data, we designed a cage in an attempt to better use the total space of the cage. This HP-SpEC was equipped with a set of L-shaped partitions for tactile retreat and additional wall contact (figure 2). The partitions were placed so that a 76 mm wide space was available between the interior partitions and the outer wall of the cage.

3-D SpEC

Using the entire volume of the cage may be another means to compensate for decreased floor space in the laboratory. This concept has been demonstrated in poultry houses where birds are free to move among perches and platforms as a means of increasing their welfare (Tauson, 1991). Again, Chamove's (1989) most successful treatment for mice involved a second deck within the cage. Thus, a second cage which allowed the rats to move in three dimensions, to better use the volume of the cage, was constructed (figure 3). The 3-D SpEC included two platforms mounted on the exterior walls of the

also additional wall contact. These extended from the bottom to the top of the cage and the length of the cage, with the exception of 76 mm on either end to allow access to the shelf areas. This setup almost doubled the amount of floor space available to the animals.

METHODS

The two SpEC designs were compared in a series of preference tests to determine the type most readily accepted by mature male rats (Sprague-Dawley, 500 gm). The preferred SpEC was then tested against a standard cage (STD) (figure 4) meeting NIH requirements for six (500 gm) rats. Each phase of the preference testing (HP-SpEC vs. 3-D-SpEC and SpEC vs. STD) was divided into two stages. One stage tested a group of 6 rats and the other tested a group of 12 rats to observe possible differences in behaviors due to increased density. Each stage was replicated eight times. All preference tests involved simultaneous access to two cage types. Rats were able to move between the two types of cages by an open passageway.

Rats were tested over a period of 6 days according to the following schedule.

- Day 1 --- SpEC cage acclimation (24 hours)
- Day 2 --- SpEC cage acclimation (24 hours)
- Day 3 --- returned to polycarbonate cage (24 hours)
- Day 4-6 - preference testing (72 hours)

Observations were taken via videotape, and seven mutually exclusive behaviors were recorded which included: 1) recumbent, 2) social interaction, 3) licking, 4) stretching, 5) eating, 6) drinking, and 7) active.

RESULTS and DISCUSSION

Over a 24-hour period, the six rats spent significantly more time in the HP cage as compared to the 3-D cage, 80.2 percent vs. 19.8 percent, respectively. This observation continued with the addition of 6 more rats with the group of 12 rats spending significantly more time in the HP than in the 3-D, 80.5 percent vs 19.5 percent, respectively. There are several explanations for the greater use

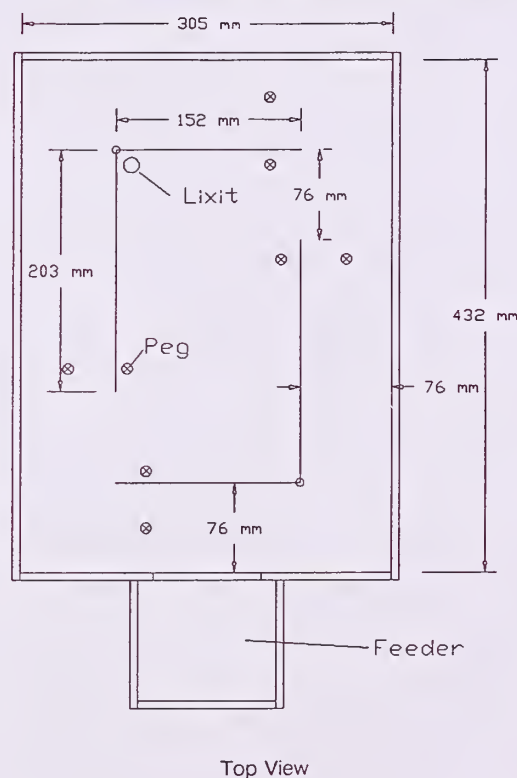


Figure 2. High perimeter (HP) cage. L-shaped partitions are stainless steel welded wire.

of the HP, especially the center of the cage, over the 3-D cage by the rats. First, because rats are thigmotactic and very social animals, they prefer to huddle. (Enhanced Cages cont'd p. 5)

VOCALIZATIONS AS INDICATORS OF EMOTIONAL STATE AND PSYCHOLOGICAL WELLBEING IN ANIMALS

by

B.E. Mulligan, University of Georgia

S.C. Baker, James Madison University

M.R. Murphy, United States Air Force, Armstrong Laboratory

Do captive animals vocally express what they feel? If they do, a study of their vocalizations may provide an objective means for assessing animal emotionality, a behavioral dimension central to the concept of psychological wellbeing.

All else being equal, happy animals probably make healthier, more reliable research subjects than chronically distressed animals. We believe that such emotional differences in behavior are reflected in the vocalizations of animals. And, because vocalizations can be acoustically monitored non-invasively and remotely, such records can provide continuous tracks of the emotional changes contingent upon treatment, environmental, and other conditions.

Vocal records may be regarded as informationally rich, yet inexpensive, forms of documentation. Any sound occurring within the range/sensitivity of a microphone may be captured in digital or analog format. Recordings may be continuous or taken in discrete time segments spaced over long intervals. They might be the calls of an isolated individual (e.g., an animal during post-surgery recovery) or of groups of animals (e.g., a group adjusting to social changes induced by the addition of a new member). The microphone does not have to be aimed directly at the vocalizing animal to catch its sound. And, although we might acoustically identify a vocalizing individual, an ID isn't essential to decipher the emotional content of its calls. Even non-vocal sounds produced as by-products of movement (e.g., explosive bouts of cage-banging by multiple individuals) may be useful indicants of temporal sequencing in emotional expression.

Acoustical recordings can be analyzed in a variety of ways, depending on the information desired. At one end of the analysis continuum, we might simply want to know the frequencies of occurrence of vocalizations (all that are emitted or, perhaps, just one call of particular interest). At the other end of the continuum, we might want to know how the patterns of amplitude and frequency modulation in an animal's calls encode its responses to significant behavioral and environmental events (e.g., a correct response while performing in a complex cognitive discrimination task; enrichment of housing conditions). For many kinds of questions and levels of analysis, the vocal record contains in intimate detail a temporally coherent stream of acoustical behavior.

For many species, there appears to be a close tie between emotional state and vocal pattern. Adult male rats forcibly

placed in confined test chambers begin emitting their intense "22 kHz cry" while dropping boli and urinating. Rhesus macaques begin moving vigorously about within their cages while emitting anticipatory "coos" in response to the sounds of footsteps from outside their living quarters, especially if a caretaker hasn't recently paid them a visit. A wild-caught mongoose "screams" and attacks the gloved hand of a researcher trying to remove it from its home cage. Fear, elation, and anger are expressed in the vocalizations of three species of captive animals.

Do the same calls occur under natural conditions in association with analogous behaviors? Rats in a burrow facing a predatory cat emit "22 kHz cries." Although this ultrasonic vocalization has been referred to as a "distress call," a similar cry may be emitted by males following ejaculation. We suspect that the calls emitted in these two situations differ in their patterns of amplitude modulation. Rhesus in trees "coo" excitedly on detecting signs of food, but they also emit a subdued "coo" when potential predators end a threat and visibly withdraw. The latter appears to signal relief rather than excitement. A mongoose cornered by a predatory dog may emit a series of increasingly hostile "pants" and "chucks" so long as the possibility of escape exits, but will "scream" and attack if it can't escape.

Under natural conditions, it appears that the meaning and acoustic nature of calls co-vary with the general character of situations, as does the emotional dimension and intensity of arousal underlying specific vocal types. The implication is that animal vocalizations express the same information in captive environments as they do in nature. They are vocal components of species-specific behavior patterns, naturally linked to arousing conditions and emotional actions.

These generalizations are drawn primarily from our research on the rhesus macaque. We selected this species of primate because it is one of the most frequently used research subjects in laboratories around the world. Given recent Federal regulations that mandate provisions for, and documentation of, maintenance of behaviorally healthy animals (especially non-human primates) in captive environments, it seemed essential that new, more powerful approaches to assessment of psychological wellbeing be developed. Enrichment efforts without a capability for documenting and assessing any resultant psychological effects may not be worth the cost and contribute little to scientific knowledge.

Our research began with acoustical analyses of rhesus vocalizations recorded over several years from a large colony of free-ranging animals (n 4,000) in naturally occurring social groups. From these data, we established the vocal repertoire and associated behavior of the rhesus under natural conditions which serves as the normative base needed to interpret vocal behavior recorded under captive conditions. We then obtained vocal and video records of rhesus maintained in a variety of captive environments: outdoor vs. in-door, single-caged vs. social groups, research subjects vs. breeding stock, etc. Although our research is far from complete, the data already indicate that this approach will become fruitful. Vocal patterns do appear to vary with housing and treatment conditions. The expression of emotion is there in the calls, in captivity as it is in the field. The difference is that, in captivity, an emotional state may be induced by human-imposed conditions, which may or may not be desirable. At least we now have a way of examining the question.

Animal vocalizations appear to express pretty much the same things under captive and natural conditions. To the extent that this is true, vocal records provide an objective, real-time basis for monitoring emotional variation in captive animals. Effects of environmental enrichments, new caretaking procedures, more humane research protocols, etc., can be evaluated in terms of emotional impact as expressed in the vocal record. It seems that animals can tell us how they feel if we learn to listen and understand.

(Send communications to Dr. Michael R. Murphy, AL/OER, 8308 Hawks Rd, Brooks AFB, TX 78235-5102)

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LITERATURE SEARCHES AND THE ANIMAL WELFARE ACT

There has been much discussion about the necessity of performing literature searches to find alternatives to the use of animals in painful or stressful experiments. Many people also question the legal requirement on performing searches to avoid unnecessary duplication of animal research.

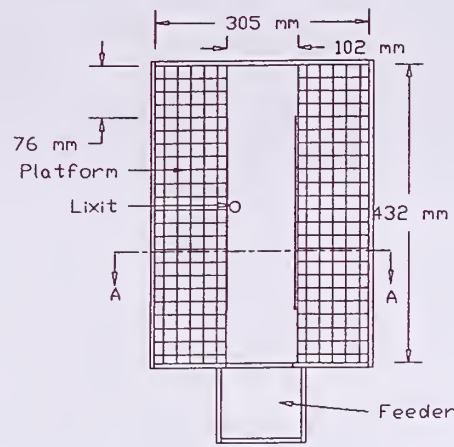
The following excerpts on the need for literature searches to find alternatives to the use of animals in painful experiments and to avoid unnecessary duplication of research (9 CFR, Title 1, Subchapter A-Animal Welfare, § 2.31(d)(ii)) are from House [of Representatives] Report 103-499 on the Fiscal Year 1995 Defense Authorization Act.

"...The committee notes that the Department of Defense (DOD) Inspector General (IG) found two DOD facilities "not substantially in compliance" with DOD regulations and the Animal Welfare Act. Although the IG identified the items of noncompliance as "procedural weaknesses," the committee notes that they include items critical to ensuring that animal research is appropriate (e.g., training, **literature searches for alternatives**) and is subject to appropriate oversight (e.g., semiannual inspections; complaint procedures). The committee directs termination of animal research at the non-compliant facilities at the U.S. Army Medical Department Center and School in San Antonio, Texas, and at the U.S. Naval Medical Research Institute Detachment in Lima, Peru, until they are accredited by the American Association for the Accreditation of Laboratory Animal Care." (p.126) [Ed. note: In Conference Report 103-701, "The conferees note that since the House report (103-499) was issued, DOD has applied for AAALAC accreditation for the two noncompliant facilities. The conferees applaud the Department's expeditious efforts... and direct the termination of animal use at these facilities one year from the enactment of this act only if they have failed to achieve AAALAC accreditation by that date." (p.619)]

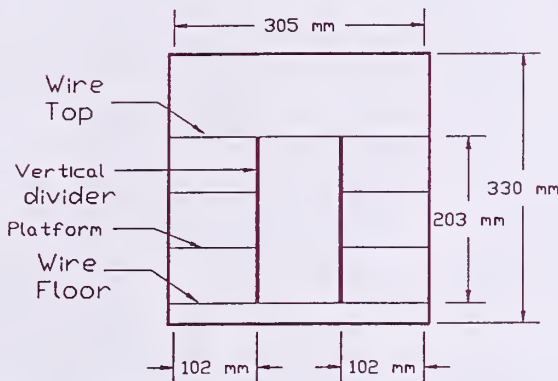
"...The first annual report on animal care and use programs also highlights a concern previously noted by a General Accounting Office (GAO) report (GAO/NSIAD-91-68) which addressed the inadequacy of searches to avoid unintended duplications of research." (p. 127)

"...The committee directs the Comptroller General to review selected DOD animal research programs and activities as follow-up to earlier studies (GAO/NSIAD-91-68; GAO/HRD-92-30) to identify areas of concern regarding military justification, duplication, and management of DOD animal research; and to make recommendations that will ensure that such research is focused on validated military need, is non-duplicative, and is effectively managed." (p. 127)

"...The committee reiterates its direction in H.R. 2401, the National Defense Authorization Act for Fiscal Year 1993 (House Report 102-527) that the Secretary [of Defense] establish aggressive programs to replace, reduce, and refine current uses of animals." (p. 127). ■



(a) Top View



(b) Section A-A (cross section through cage at point indicated in Figure 3a.)

Figure 3. Three-dimensional (3-D) cage. Platforms and interior vertical dividers are stainless steel welded wire.

dle and sleep together when housed in groups. The design of the HP allowed the rats to maintain contact with the L-shaped wire mesh walls as well as maintain contact with other members of the group. The 3-D cage may have limited the space for the rats to gather as a group as well as perform certain behaviors such as grooming. The space available outside the L-shaped perimeter allowed the rats to continue to eat, groom, and interact, if they chose to leave the center where the rest of the group slept.

The true preference test lied in the comparison of the HP vs STD cage. The rats continued to choose the HP at a significantly higher rate. The percentage of time observed in the HP for 6 rats was 79.6 percent vs. 20.4 percent for the STD. Similarly, the

12-rat group chose the HP over the STD, 66 percent vs. 34 percent of the time. The increased activity (amount of time spent performing observed behaviors) in the 12-rat STD cage may be attributed to the rise in ac-

tive behaviors during darkness. The rats may have found it easier to eat, drink, interact socially, and, in general, remain active in the STD cage rather than "wait in line" to accomplish these behaviors in the HP. It was still apparent, especially when the rats were recumbent or resting, that they overwhelmingly chose to reside in the HP. However, the reduction in occupancy of the HP from 79.6 percent to 66 percent suggests that the increase in density from 6 to 12 rats is reaching the maximum limits of the HP cage. Further study is warranted.

The rats chose social interaction and security over extra floor space, thereby defining what their needs really are when it comes to space. In the midst of the revision of the PHS *Guide to the Care and Use of Laboratory Animals*, it is imperative that researchers attempt to quantify what animals inherently need. It should not be merely a

guess at numbers. However, we should continue to strive to improve their way of living, as they have continuously done for us.

This research was supported by the National Aeronautics and Space Administration.

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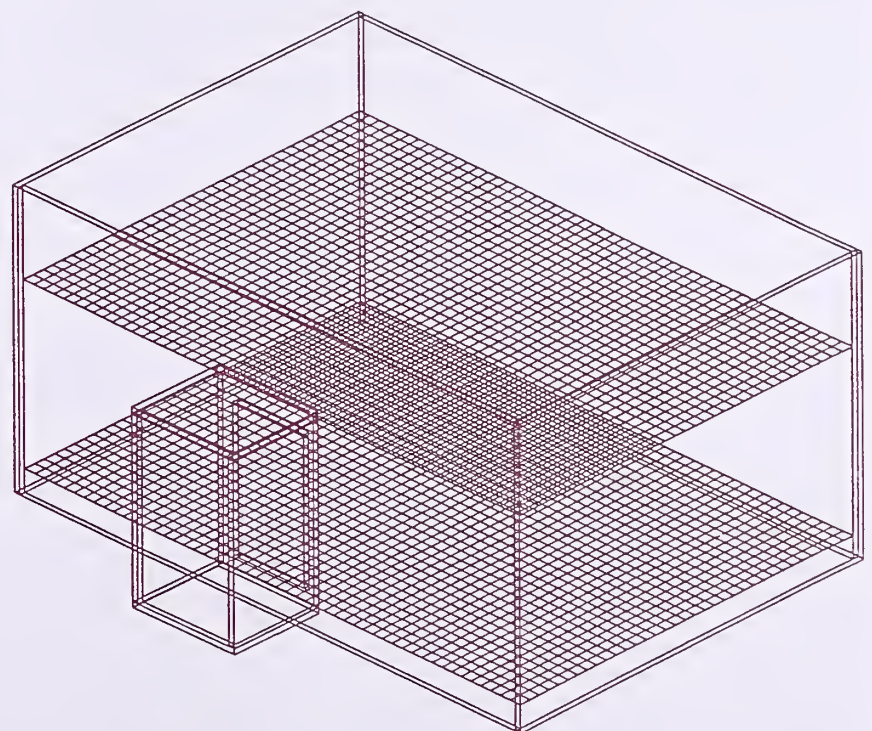


Figure 4. Standard normal cage. Floor and top are stainless steel welded-wire mesh. Walls are 6.4-mm thick Plexiglas. Overall dimensions: 635 mm wide x 432 mm long x 330 mm high (the wire top and the floor are 203 mm apart).

Meeting the Information Requirements of the Animal Welfare Act

A Workshop

by

Tim Allen, National Agricultural Library, Animal Welfare Information Center

In 1985, with the passage of the Food Security Act, Congress let it be known that it was deeply concerned about the welfare of animals used in biomedical research, testing and teaching. One of the bills attached to the act, the Improved Standards for Laboratory Animals Act, set much more rigorous husbandry standards, provided for the psychological wellbeing of non-human primates used in research, set standards for the exercise and socialization of research dogs, and required researchers to look for alternatives to the use of animals in experiments that were painful or distressful to the animal subjects. Because of this provision, Congress authorized the Secretary of Agriculture to establish an information service at the National Agricultural Library to provide information pertinent to employee training, to prevent unintended duplication of animal experimentation, to reduce or replace animals used in painful experiments, or on refined methods to minimize pain to animals when no other model can be found. This service is the Animal Welfare Information Center.

As with any regulatory change, there was confusion within the research community over exactly what they were required to do in order to be in compliance with the new regulations. In particular was the requirement that the "principle investigator has considered alternatives to procedures that may cause more than momentary or slight pain or distress to the animals, and has provided a written narrative description of the methods and sources, e.g., the Animal Welfare Information Center, used to determine that alternatives were not available..." This written narrative has been interpreted to mean that a search of the literature for alternatives has been conducted.

It has been AWIC's experience that many people within the regulated community are confused over just what is an "alternative" and what is an effective method of searching the literature to show compliance with the law. To help meet the needs of our patrons and to alleviate some of the uncertainty, the staff of AWIC developed a workshop on "Meeting the Information Requirements of the Animal Welfare Act." Since its inception in late 1991, the workshop has evolved into its present format based upon the feedback we received from earlier participants. The workshop is organized around a view of the law, the "alternatives concept," information and database resources, developing search strategies, and finally, hands-on searching experience using DIALOG.

The workshop is a 2-day discussion/class held at the National Agricultural Library in Beltsville, MD. Because it is important that people have a proper perspective of why the regulations exist, the class begins with an overview of animal protection statutes in the United States and provides

a historical background for the development of the current Animal Welfare Act regulations. This easily leads into a general discussion of the various aspects of the Animal Welfare Act with emphasis placed on the information requirements for both investigators and Animal Care and Use Committees. An important part of this discussion is lead by a representative from the USDA's Regulatory Enforcement and Animal Care staff of the Animal and Plant Health Inspection Service.

The "alternatives concept" regarding animal use was eloquently described by W.M.S. Russell and R.L. Burch in their 1959 book *The Principles of Humane Experimental Technique*. As with much classical scientific writing, it took almost 20 years for the scientific community to recognize the profound implications of their work. However, the principles espoused--reduction of animals used in experiments, refined techniques to minimize pain, and replacement with non-animal models where applicable--are the basis for the current alternatives movement within the scientific community. It is also the concept taught in the AWIC workshop.

The remainder of the class is devoted to a comprehensive look at organizational and database resources for information retrieval. Many people are unaware of the scope of electronic resources, such as Medline, EmBase, Biosis Previews, listservs on the Internet, etc., available to assist them in finding information. To that end, our discussion includes a look at more than 30 databases that we have found to be useful sources for possible alternatives. We also look at AWIC, NAL, and other groups that can provide information.

Because searching the literature for alternatives is different from performing a typical scientific literature search, we take a long look at developing search strategies to maximize information retrieval. Finally, the participants are provided with training passwords for Dialog and are given the opportunity to go online and locate information for questions that they bring from their institutions.

The response to the workshop has been overwhelmingly positive. Accordingly, AWIC will be conducting four workshops at the National Agricultural Library during 1995. Classes are scheduled for April 3-4, June 22-23, September 28-29, and December 7-8. Class size is limited to 16 people.

If you would like registration information for the workshop, please contact Ruth Criscio at USDA, AWIC, NAL, 5th Floor, 10301 Baltimore Blvd., Beltsville, MD 20705-2351. Tel: (301) 504-6212 or Fax: (301) 504-7125. Our Internet address is AWIC@NALUSDA.GOV. ■



Tapping Government Information Via FedWorld

by

Robert Bunge, NTIS, U.S. Department of Commerce,
Karl Schneider, National Agricultural Library, and
Tim Allen, Animal Welfare Information Center

Portions of this article originally appeared in "Vignettes," the newsletter of the Agricultural Trade and Marketing Information Center at the National Agricultural Library.

The National Technical Information Service (NTIS) introduced FedWorld in November 1992 to help businesses with accessing Federal information online, thus bringing more than 100 federally operated online computer systems under a single umbrella.

FedWorld is a clearinghouse for the Government's electronic marketplace for information. Through the Internet or a telephone line, it provides you with direct access to any of these online computer systems and bulletin boards (BBS). You will not need another phone number, modem setting, or computer name to connect to sources of information such as: White House press releases; National Performance Review report and updates; health care reports; NTIS product information; Federal job listings (updated weekly); small business advice; Federal property for sale; currency exchange rates (updated daily); consumer information; Department of Commerce's Economic Bulletin Board reporting economic indicators; and the National Agricultural Library's BBS, the Agricultural Library Forum (ALF).

To connect to FedWorld, all you need is a personal computer and a modem. To connect to FedWorld via modem, dial (703) 321-8020 (Ed. note: This is not a free call). Set the parity to NONE, Data Bits to 8, and Stop Bit to 1(N-8-1); set the terminal emulation to ANSI or VT-100. FedWorld accommodates speeds up to 9600 baud. To connect to FedWorld through the Internet, telnet to: fedworld.gov.

When you first connect to FedWorld, you will be asked to sign on using your first and then last name. Your name will become your login. You will then be directed to assign yourself a password. Use your login and password each subsequent time you connect to FedWorld. When you first connect you will receive a new users' mail message explaining the use of NTIS FedWorld. As you work through the system, a menu of appropriate options is always provided at the bottom of the screen.

There are several important menu choices from the main FedWorld Menu:

SELECTION A - The Locator Access Retrieval System, allows you to search for keywords in several important current government publications.

SELECTION B - The Main Information Menu, gives general information concerning FedWorld and access to significant NTIS media announcements.

SELECTION D- Leads to the FedWorld Gateway, which provides access to over 100 government bulletin boards. (See NTIS FedWorld Gateway BBS list) The bulletin board systems are menu-driven, but some are more user-friendly than others. Most of these bulletin boards (BBS) require a sign-on. Other use restrictions may apply. Read the information provided carefully.

FedWorld is offered free of charge except for a few bulletin board services which require a paid subscription. The FedWorld system runs on a BBS software platform called the Major BBS by Galacticomm. More than 60 incoming lines are available.

For technical assistance with FedWorld or questions, please call (703) 487-4608, 10:00 a.m. to 4:00 p.m. (EST). You may also leave questions in the form of E-mail on FedWorld addressed to Sysop (Systems Operator).

(Information on FedWorld was provided by Robert Bunge, National Technical Information Service (NTIS), U.S. Department of Commerce, Springfield, VA; tel: (703) 487-4608.)

Accessing ALF

The Agricultural Library Forum (ALF) is the National Agricultural Library's (NAL) electronic bulletin board. It may be accessed via Telnet to FedWorld, the NTIS (U.S. Department of Commerce) bulletin board and gateway system; or it may be accessed via personal computer.

The bulletin board (available 24 hours per day, 7 days per week) is open to all those interested in agricultural (including animal welfare) information issues.

The Agricultural Library Forum Brief Guide is available to help participants get started on ALF. It describes the system's major features and how to use them effectively. To request a copy of the "Brief Guide," send a self-addressed gummed label to: NAL, Reference and User Services Branch, Room 111, ATTN: Publication Distribution, 10301 Baltimore Boulevard, Beltsville, MD 20705-2351.

For technical assistance with ALF or questions, please contact Karl Schneider, Sysop, telephone: (301) 504-5113 or Internet: kschneid@nalusda.gov

Accessing ALF From the Internet

New callers to FedWorld must first register on the FedWorld BBS system.

- Use the command "telnet fedworld.gov", or "telnet 192.239.92.201".
- To link to ALF after registration, follow menu options. To use the Gateway choose "D" from the Main menu, then choose "D" from the Gateway menu to link to a Federal system, then enter "2" to connect to ALF. After initial FedWorld registration, commands may be stacked. For example, enter "D 2" from FedWorld's main menu to access ALF.
- File transfer from/to ALF after Telnet to FedWorld requires the use of either Kermit (for command or compressed files) or ASCII (for text-only files). Files will transfer from ALF to your Internet access account files area, or to your PC if you linked to your Internet host through a modem.

Accessing ALF by Personal Computer

To reach ALF, callers need a computer terminal or computer, a modem, and communications software. The telephone numbers are (301) 504-6510, (301) 504-5111, (301) 504-5496, or (301) 504-5497. Communications software should be set at either 300, 1200, 2400, or 9600 baud, full duplex, no parity, 8 data bits, and 1 stop bit.

Accessing AWIC Files on ALF

Many AWIC publications; the Animal Welfare Act and its regulations; Public Health Service laws, policies and guidelines; GLP for Nonclinical Laboratory Studies; GLP Standards; and other items can be retrieved from the files located on ALF.

After you have logged onto ALF, you will be in the main ALF bulletin board. At the MORE prompt, answer *NO*. You will be presented with a series of questions (the number of questions will vary depending upon whether new bulletins, files, or mail have been posted since your last login); type *NO* to each question. After the last question, you will enter the MAIN commands menu. Type *F* (for files) and you will access the Files menu. Type *L* (ist) *animal* and you will now see the list of AWIC files along with a brief description of each file. You will notice that the files have either a TXT or ZIP extension. TXT files are ASCII files and ZIP files have been compressed using PKZIP204G software. To uncompress these files, you can download the PKZIP software by typing *D*(ownload) *PKZIP204G.EXE*. (You do not have to download the PKZIP software every time.) At this point, you will need to enter the appropriate communications software commands for downloading files. This will depend on your particular software package. The ALF screen will indicate that it is downloading the file and give you the approximate transfer time. You can now download any AWIC files of interest using the full filename with extension, e.g., *D QB9416.ZIP*.

To unzip the retrieved materials, we have found it easiest to transfer the materials to the directory of our communication software (e.g., Crosstalk), and uncompress the materials at the DOS prompt. This is accomplished by simply typing *PKUNZIP [filename.ext]*, e.g. *PKUNZIP QB9416.ZIP*. The uncompressed file can then be retrieved into your word processing system.

We hope that you will find it easy to use the ALF system for retrieval of AWIC electronic documents. Please call us at (301) 504-6212 with any comments or cries for help.

AWIC Files on the Internet

With the generous assistance of Dr. Ken Boschert, many of the same AWIC materials found on ALF can also be found on the NETVET gopher at Washington University in St. Louis, Missouri. The host name is netvet.wustl.edu (or 128.252.235.17). For more information on this service you can contact Dr. Boschert at KEN@WUDCM.WUSTL.EDU.

You can also access AWIC materials through the National Agricultural Library's (NAL) Gopher. The host name is gopher.nalusda.gov 70. For more information on the NAL Gopher contact Bill Feidt, chief of NAL's Library Automation Branch, at "wfeidt@nalusda.gov". ■



CORRECTION

In the AWIC Newsletter, Vol.5 #2, Summer 1994, the article *Marine Mammal Welfare: The Role of USDA, APHIS*, by Dr. Barbara Kohn, incorrectly states (p. 7) that "Under the new MMPA [Marine Mammal Protection Act], a NMFS [National Marine Fisheries Service] permit is still required for the acquisition and holding of marine mammals for display, research, or species enhancement purposes." This statement has been revised to read "Under the new MMPA, a NMFS permit is NOT required for the acquisition and holding of marine mammals for display, research, or species enhancement purposes, provided that the animals are already members of the captive population." APHIS regrets the error and any problems this may have caused.

Grants...

● DEVELOPING AND IMPROVING INSTITUTIONAL ANIMAL RESOURCES

The National Center for Research Resources (NCRR) encourages the submission of individual animal resource improvement grant applications from biomedical research institutions. The major objectives of this program are to upgrade animal facilities, develop administratively centralized programs of animal care, and enable institutions to comply with the USDA Animal Welfare Act and Department of Health and Human Services policies related to the care and use of laboratory animals. Support is limited to alterations and renovations to improve laboratory animal facilities, and the purchase of major equipment items for animal resources, diagnostic laboratories, transgenic animal resources, or similar associated activities. Eligibility, application procedures, deadlines, and program details can be found in *NIH Guide*, volume 23, number 27, July 22, 1994, PA Number PAR-94-083. Inquiries about the program can be directed to:

Director, Laboratory Animal Sciences Program
Comparative Medicine Program
National Center for Research Resources
Westwood Building, Rm. 857
Bethesda, MD 20892-4500
Tel: (301) 594-7933
Fax: (301) 594-7955

● AVIAN RESEARCH

The Association of Avian Veterinarians (AAV) offers grants for avian research with clinical applications. The AAV is an international professional organization dedicated to the advancement and promotion of avian medicine and stewardship. Grant information can be obtained through the central office: Adina Rae Freedman, Executive Director, P.O. Box 811720, Boca Raton, FL 33481; Tel: (407) 393-8901; Fax: (407) 393-8902

● MECHANISTICALLY - BASED ALTERNATIVE METHODS IN TOXICOLOGY: RFA #ES-94-009

The National Institute of Environmental Health Sciences has announced a request for applications (RFA) entitled "Mechanistically-Based Alternative Methods in Toxicology."

The RFA is being issued to foster the development, validation, and use of improved testing and research methods and models that either do not require the use of animals, that reduce the number of animals used, or that involve the use of alternatives such as non-mammalian species. It is anticipated that improved testing methods that incorporate new knowledge regarding the molecular and cellular mechanisms of toxicity will be developed and validated, and existing test methods will be refined to use new scientific information and techniques. Toxicological test methods/model systems are encouraged in the priority areas of carcinogenicity, neurotoxicity, and developmental toxicity, but will be considered for any area of toxicity testing. Examples of alternative methods and models that may be appropriate for development under this program include genetically engineered cell lines, non-mammalian and invertebrate species, transgenic animals, and computer-based prediction and modeling systems.

The anticipated funding level (total cost) is \$ 1.5 million per year for 3 years, and it is estimated that 8 to 10 grants will be awarded. Applications must be received by December 20, 1994. The anticipated date of award is July 1, 1995.

A copy of the RFA can be obtained from Dr. Jerrold Heindel, Program Administrator, Organs and Systems Toxicology Branch, Division of Extramural Research and Training, MD 3-03, National Institute of Environmental Health Sciences, P.O. Box 12233, 104 T.W. Alexander Drive, Research Triangle Park, NC 27709.

Telephone: 919-541-0781; FAX: 919-541-2843;

E-mail: Heindel_J@NIEHS.NIH.GOV.

The RFA is also available electronically via the Internet using either the GOPHER or MOSAIC client. The NIEHS gopher can be found on the "United States Government Gophers" list.

● ADVANCED BIOMEDICAL TECHNOLOGY SOL BAA #94-14

The Advanced Research Projects Agency (ARPA), U.S. Department of Defense, is initiating a program in Advanced Biomedical Technology with the focus of medical support on the battlefield. There is particular interest in those technologies which are of dual use -- i.e., have both commercial and military utility.

Despite advances in medical care, casualties in the zone of close combat continue to constitute 90 percent of battlefield mortality. The majority of these die from exsanguination before being located by a medic or receiving definitive surgical care. The reason is that the practice of medicine has made poor use of emerging sensor and information technologies.

The program is planned as a 5-year effort with initial awards totaling up to \$6 million. Collaborative efforts are encouraged. Proposals are sought in the following areas, but other proposals that support the overall program objectives will be considered:

1)Remote advanced diagnostics. One item is a small body-worn monitoring device of vital signs including blood pressure, pulse rate, ECG, and oxygen saturation. There is high interest that this device incorporate position location (keyed to a Global Positioning Satellite), friend or foe identification, and telecommunications. In addition there is strong interest in developing more extensive devices for non-invasive monitoring of vital body chemicals.

2)Medical Simulation. The next critical advancement in medical education appears to require a virtual environment (cadaver) of human anatomy that permits education in basic and abnormal (e.g., military wounds) anatomy. Such a simulation should have realistic interaction capable of supporting surgical simulation for training. There is also interest in a virtual environment for individual simulated soldiers and medics which is compatible with SIM-NET for use in medical forces planning and training.

The BAA will remain open until January 27, 1995. For more information, contact Dr. Richard Satava, ARPA/DSO, Advanced Research Projects Agency, 3701 N. Fairfax Dr., Arlington, VA 22203-1714. Fax: (703) 696-2201 Request a copy of BAA #94-14 and Guidelines for Proposal Submission. ■

Legislation cont'd from p. 1

tests without encouragement from the Federal Government.

Section 3 outlines certain actions to be taken by Federal departments or agencies to implement the requirements of the act. The department or agency shall: evaluate departmental regulations, guidelines, or recommendations which require or encourage the use animal acute toxicity tests; conduct a review and evaluation of nonanimal alternatives with the potential for partial or full replacement of the Draize or other animal acute toxicity test for some or all of the products regulated; and promulgate regulations, guidelines, or recommendations that specify a nonanimal acute toxicity test or battery of tests unless the Federal department or agency determines that the nonanimal test(s) is less likely to predict the acute health effects on humans of a product than the animal acute toxicity test. The act also provides for periodic review of animal acute toxicity testing regulations.

Section 4 stipulates that the act shall not apply to regulations, guidelines, or recommendations related to medical research.

- **H.R. 4971 To amend the Animal Welfare Act to strengthen the annual reporting requirements of research facilities conducting animal experimentation or testing and to improve the accountability of animal experimentation programs of the Department of Defense.**

Introduced August 16, 1994, by Robert G. Torricelli (D-NJ) and referred jointly to the Committees on Agriculture and Armed Service. Referred to the Subcommittee on Research and Technology on August 18, 1994. This act may be cited as the "Animal Experimentation Right to Know Act."

Section 3 outlines additional elements of the reporting requirements of the Animal Welfare Act (7 U.S.C. 2143) including: where animals were obtained from, an accurate count of all animals of all species used in animal experimentation testing, including rats, mice, and birds; information regarding the general purpose of the animal experimentation, including

whether the animals were used in research, testing, or education. In addition a system for releasing to the public information on where animals used in research are obtained from shall be developed by the Secretary of Agriculture.

Section 4 amends the Animal Welfare Act (7 U.S.C. 2143) to include requirements for the Department of Defense to provide Congress with an indepth annual report profiling animal research conducted at each Department research facility. To the greatest extent possible the report should be filed as an unclassified document. The report shall include the following: initiatives to promote alternative research methods that would phase out and reduce the use of animals; procedures to prevent unintended duplication; and total cost of animal-based research in comparison to other forms of biological research. The Secretary of Defense shall appoint an ombudsman for animal issues at each research facility of the Department of Defense. This individual would act on any complaints and concerns about the facility's animal care and use program. The Secretary of Defense may submit a waiver form in place of any information regarding animal tests that the Secretary of Defense determines cannot be publicly disclosed for reasons of national security.

An 11-member panel of biomedical and animal care experts will be assigned to investigate the animal use and care programs of the Department of Defense. The panel shall examine the ethics and regulation of the number and types of animal experiments conducted by the Department of Defense.

- **S. 2156 To provide for the elimination of reports by Federal departments and agencies to the Congress, and for other purposes.**

Introduced May 25, 1994, by Carl Levin (D-MI) and referred to the Committee on Governmental Affairs. Senate Report 103-375 issued on September 26, 1994. This act may be cited as the "Federal Report Elimination and Modification Act of 1994."

Section 1012 modifies report requirements for the Horse Protection

Act of 1970 (15 U.S.C. 1830). Section 1081 eliminates a report on the African Elephant Conservation Fund which was mandated by section 2103 of the African Elephant Conservation Act (16 U.S.C. 4213). Section 1082 modifies report requirements for section 18 of the Endangered Species Act of 1973 (16 U.S.C. 1544).

- **H.R. 5055 To amend the Federal Meat Inspection Act, the Poultry Products Inspection Act, and animal quarantine laws to provide for improved public health and food safety through the reduction of pathogens, and for other purposes.**

Introduced September 19, 1994, by Charles W. Stenholm (D-TX) and referred to the Committee on Agriculture. This act may be cited as "The Pathogen Reduction Act of 1994."

Congress finds that pathogens are a significant source of foodborne illness associated with meat, meat food products, poultry, and poultry products. Proper handling of meat or products of cattle, sheep, swine, goats, horses, mules, or other equines, or poultry products which may bear or contain human pathogens is necessary to prevent foodborne illness. Livestock and poultry producers, handlers, processors, distributors, transporters, and retailers all share responsibility in handling livestock, meat, meat food products, poultry, and poultry products in such a way as to protect the public health. The distribution of meat, meat food products, poultry, or poultry products which could be injurious to the public health because they contain human pathogens would impair the effective regulation of wholesome meat, meat food products, poultry, or poultry products in interstate and foreign commerce and would destroy markets for wholesome products. In order to reduce the risk of foodborne illnesses and protect public health, a concerted effort is required on the part of regulatory authorities and all parties involved in the production and handling of meat, meat food products, poultry, or poultry products to address the problem of microbial contamination using the best available

scientific information and appropriate technology.

- **H.R. 4997 To amend title 18, United States Code, to prohibit interstate connected conduct relating to exotic animals.**

Introduced August 19, 1994, by George E. Brown (D-CA) and referred to the Committee on the Judiciary. Referred to the Subcommittee on Crime and Criminal Justice on August 23, 1994. This act may be cited as the "Captive Exotic Animal Protection Act."

Whoever, in or affecting interstate or foreign commerce, knowingly transfers, transports, or possesses a confined exotic animal, for the purposes of allowing the killing or injuring of that animal for entertainment or the collection of a trophy, shall be fined under this title or imprisoned not more than 1 year, or both.

- **H.R. 4924 To assist in the conservation of rhinoceros and tigers by supporting and providing financial resources for the conservation programs of nations whose activities directly or indirectly affect rhinoceros and tiger populations, and of the CITES Secretariat.**

Introduced August 9, 1994, by Jack Fields (R-TX) and referred to the Committee on Merchant Marine and Fisheries. House Report 103-748 issued on September 26, 1994. Measure passed House on September 27, 1994. This act may be cited as the "Rhinoceros and Tiger Conservation Act of 1994."

A separate account known as the "Rhinoceros and Tiger Conservation Fund" will be established in the general fund of the Treasury. All amounts received by the Secretary of the Interior will be in the form of donations and other amounts appropriated by the fund. The Secretary of the Interior may not use more than 3 percent of the money in the fund to administer the fund. A sum of \$10 million is authorized to be appropriated to the fund for fiscal years 1996 through the year 2000. Subject to the availability of appropriations the Secretary of the Interior shall use amounts in the fund to provide finan-

cial assistance for projects for the conservation of rhinoceros and tigers. "Conservation" is defined as the use of all methods and procedures necessary to bring rhinoceros and tigers to the point at which there are sufficient populations to ensure that those species do not become extinct, including activities associated with scientific resource management, such as research, census, law enforcement, habitat protection, acquisition, and management, propagation, live trapping, and transportation.

- **H.R. 4602 Making appropriations for the Department of the Interior and related agencies for the fiscal year ending September 30, 1995, and for other purposes.**

Introduced July 26, 1994, and ordered to be printed with the amendments of the Senate numbered. Measure signed in Senate and made Public Law 103-332 on September 30, 1994.

Appropriation language is included for a number of animal-related acts and special funds including range land improvements, United States Fish and Wildlife Service Resource Management, Cooperative Endangered Species Conservation Fund, National Wildlife Refuge Fund, expenses to carry out African Elephant Conservation Act, North American Wetland Conservation Act, and a national biological survey.

- **H.R. 4734 To require consultations, assessments, and monitoring of the effects of major trade actions on the environment generally, including fish, wildlife, endangered species, and other natural resources.**

Introduced July 13, 1994, by Gerry E. Studds (D-MA) and referred jointly to the Committees on Ways and Means and Merchant Marine and Fisheries. House Report 103-760 issued on September 28, 1994. This act may be cited as the "Trade and Environment Reporting Act of 1994."

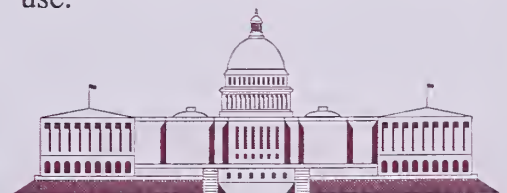
Congress finds that the United States promotes efforts to prevent harm to the environment generally, including fish, wildlife, endangered

species, and other natural resources and to encourage sustainable development. Free trade agreements and other major trade actions may have significant effects, positive and negative, on environmental resources. Before entering into negotiations for any free trade agreement or other major trade action, the United States Trade Representative shall consult with an appropriate advisory committee, including the Trade and Environment Policy Advisory Committee, Federal agencies, environmental organizations, and other interested persons, for the purpose of identifying environmental resources that may be affected.

- **S.2269 To protect Native American cultures and to guarantee the free exercise of religion by Native Americans.**

Introduced July 1, 1994, by Daniel K. Inouye (D-HI) and referred to the Committee on Indian Affairs. Hearings held on July 14, 1994. This act may be cited as the "Native American Cultural Protection and Free Exercise of Religion Act of 1994."

Native American practitioners shall be permitted access to Federal lands at all times for Native American traditional cultural, or ceremonial or religious purposes, including access to gather, harvest, or maintain natural substances or natural products for Native American traditional cultural purposes. Federal agencies may take reasonable measures to assure that access and use of lands under this act do not have a direct significant and negative impact on national security or the implementation of the Endangered Species Act. The Director of the United States Fish and Wildlife Service shall in consultation with Indian tribes and Native American traditional leaders develop a plan to ensure the prompt disbursement for Federal depositories of available bald eagles or golden eagles, or their parts, nests, or eggs for traditional cultural use.



Save the Manatee Club

This holiday season, give a 10-foot-long, 1000-pound package of love. You can't *really* gift-wrap a manatee or send it by mail, but you can adopt a manatee for someone you know and help ensure the survival of this endangered species.

The manatee is a large, aquatic mammal that can be found in the shallow, slow-moving rivers, estuaries, saltwater bays, canals, and coastal areas of Florida

[Ed. note: A 10-foot-long, 1700-pound male manatee, estimated at 30-50 years old, was recently rescued from the cooling waters of the Chesapeake Bay, near the Eastern Shore of Maryland; the State of Maryland, U.S. Government, and the Save the Manatee Club joined efforts and successfully released him near Cape Canaveral, Florida]. They are gentle and slow-moving animals and spend most of their time grazing for submerged plants and basking in warm waters. A manatee adoption is a rare and original gift because it is a way to get to know one of these unique animals -- up close and personal.

Twenty-three manatees who live in their natural environment and winter at Blue Spring State Park in Orange City, Florida, have been chosen for Save the Manatee Club's (SMC) Adopt-A-Manatee program. For twenty dollars (\$20), "parents" receive an adoption certificate, an underwater photo of "their" manatee, the manatee's life history, and a subscription to the SMC Newsletter.

Boomer, Brutus, Lucille and Paddy Doyle, Flash, Success, and Howie -- these are names of just some of the adoptees in SMC's Adopt-A-Manatee program. Each manatee has distinctive characteristics -- Boomer is curious, Brutus is huge (1,800 pounds!), Lucille is now a grandmother, and Paddy Doyle is feisty. Flash is shy, Success just had her third calf, and Howie, well, Howie loves to upset the research canoe!

Each newsletter contains an update on the adoptees, written by Ranger Wayne Hartley, of Blue Spring State Park, who says that his favorite part of the job is

"manatees, anything to do with them." "I like greeting them all in the fall when they come in, seeing them swim by," says Ranger Hartley. "When they go out for the season, I wonder who's going to come back, what are they going to look like?" Wayne always has stories to tell about the manatees -- who's expecting a new calf, who is "hanging" out with whom, which manatee has made the most visits, and who has new scars (from being hit by

boat propellers). A manatee adoption is a way to learn about manatees and the environment.

Funds from the Adopt-A-Manatee program go toward helping to save manatees from extinction. This is done through public awareness activities such as State and national

public service announcements and "Caution - Manatee Area" signs distributed free to Florida residents living on the water; free education materials for school classes all across the United States; funds given to manatee research and manatee rescue and rehabilitation efforts; and lobbying on the local, State, and Federal levels to ensure better protection for manatees and their habitat.

Currently, there are approximately 1,800 manatees left in the United States, and they are listed as endangered by the U.S. Fish and Wildlife Service. Many manatee mortalities are human-related, with watercraft collisions responsible for the largest number of human-related deaths. Other causes of human-related manatee mortalities include ingestion of fish hooks, litter, and monofilament line, entanglement in crab trap lines, and vandalism. Loss of habitat from coastal development is associated with all of these forms of mortality.

Save the Manatee Club is a national, nonprofit organization established in 1981 by former Florida Governor Bob Graham (now a U.S. Senator) and singer-environmentalist Jimmy Buffett (cochairman of SMC). For more information on manatees, the Adopt-A-Manatee program, or to receive a copy of the SMC gift catalog, call Save the Manatee Club at 1-800-432-JOIN, or write to SMC at 500 N. Maitland Ave., Maitland, FL 32751. ■



Announcements...

● 21ST EDITION IATA LIVE ANIMALS REGULATIONS

When transporting live animals, it is of paramount importance to ensure the safety and welfare of the animals while in the care of all parties concerned with their transportation. The 21st edition of the International Air Transport Association (IATA) Live Animals Regulations, which became effective October 1, 1994, emphasizes the importance of compliance with the regulations to ensure that animals arrive at their destination in a healthy condition.

The new edition contains the amendments that the IATA Live Animals Board has approved in consultation with the Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Office International des Epizooties (OIE). Also consulted were government authorities that have formally adopted the regulations, including the Commission of European Communities, representing 12 European Union member states, and the U.S. Fish and Wildlife Service. Recommendations from other interested parties and international organizations were also taken into consideration when these regulations were updated.

New Format

The introduction of a new format presenting routine procedures for the preparation of live animal shipments for air transport will enable all parties responsible for training and development to use the regulations as a training manual. This format will be especially useful to beginners.

Major Changes

New to the regulations are:

- Layout of all chapters and sections
- Container numbers for all specific requirements (a conversion table for old and new container numbers is published in appendix B)
- General container requirements for domesticated species, birds (including ratites), monkeys and non-human primates, reptiles, aquatics, insects, and non-domesticated mammals
- Container Requirement 25--Specific requirements for bulk shipment and penning systems for ostriches
- Container Requirement 56--Specific requirements for live corals
- Examples of shipper's certification for live animals
- Examples of CITES permits
- Guidelines for importing live animals into the European Union from third countries

Updates include:

- Container requirements and illustrations for a number of species
- Government exceptions
- Carrier exceptions
- Shipper's responsibilities
- CITES documentation
- Marking and labeling
- Common and scientific names of animals
- General loading procedures
- List of CITES Management Authorities

The price of the 21st edition is US \$61 per copy. Subscriptions from Federal and State government offices are

eligible for a 25 percent discount. Orders and payments should be mailed to the Publications Assistant, IATA, 2000 Peel Street, Montreal, Quebec, Canada, H3A 2R4. Tel: (514) 985-6326 or (800) 716-6326; Fax: (514) 844-9089.

If you have any questions, comments, or suggestions for improvement of the IATA Live Animal Regulations, please contact Joseph Chan, Manager, Special Cargoes, at IATA's Montreal office, Tel: (514) 985-6361; Fax: (514) 844-7711.

● INTERNATIONAL SOCIETY FOR APPLIED ETHOLOGY

The International Society for Applied Ethology (ISAE) was formed in Edinburgh in 1966, as the Society for Veterinary Ethology. It rapidly expanded into an international organization that covers all aspects of ethology and other behavioral sciences. The society provides a forum for individuals interested in any aspect of applied ethology and/or animal welfare, whether it involves farm, zoo, companion, laboratory, or wild animals.

The ISAE has 10 regional chapters worldwide that conduct meetings and exchange information in addition to its annual conference. Next year, the U.S. and Canadian regions of ISAE will conduct a joint meeting (July 5-6, 1995) immediately preceding the Animal Behavior Society meeting in Lincoln, Nebraska. Also, an E-mail bulletin board is available to members to facilitate the exchange of information, discussion, announcements, news items, etc. ISAE members receive a quarterly newsletter and may subscribe to the journal *Applied Animal Behaviour Science* at a greatly reduced rate. For more information concerning ISAE membership, please contact: Dr. Janice C. Swanson, Kansas State University, Department of Animal Science and Industry, Weber Hall, Manhattan, KS 66506. Tel: (913) 532-1244; Fax: (913) 532-7059; E-mail: jswanson@oz.oznet.ksu.edu

● ANIMALS IN EDUCATION PUBLICATION AVAILABLE

Animals in Education: The Facts, Issues, and Implications by Lisa Anne Hepner is a discussion of the author's opposition to dissection in education. Ethical, legal, and educational issues are presented. The 311-page book also includes lists and descriptions of alternatives to dissection in secondary schools and colleges including medical and veterinary programs. It is available for \$12.95 (plus \$2 for postage and handling) from Richmond Publishers, P.O. Box 91683, Albuquerque, NM 87199-1683.

● INTERNATIONAL COURSE ON LABORATORY ANIMAL SCIENCE

A 2 week intensive course on laboratory animal science will be held at the Department of Laboratory Animal Science - Utrecht, The Netherlands, in June 1995. Its objectives are to present facts and principles that are essential for the humane use of animals and for the quality of research. The contents follow the recommendations of the Federation of European Laboratory Animal Science Associations (FELASA) regarding the training of scientists who use vertebrate animals in research. The course is also of interest to those who intend to set-up similar courses. For information and application

forms, contact Prof.dr. L.F.M. van Zutphen or Mrs. Marianne Albers at the Department of Laboratory Animal Science, Faculty of Veterinary Medicine, P.O. Box 80.166.3508, TD Utrecht, The Netherlands. Tel: 31-30-532033; Fax:31-30-537997.

● MEETING OF THE SOCIETY FOR TROPICAL VETERINARY MEDICINE

The Third Biennial Meeting of the Society for Tropical Veterinary Medicine (STVM-95) will be held in San José, Costa Rica, on May 8-12, 1995. The meeting will include general sessions featuring subject areas such as host-parasite interactions, disease kinetics, and disease diagnosis, management, and control. There will also be two symposia: "Vector-borne Pathogens" and "International Trade and Animal Disease." For more information, contact: Dr. James A. House, USDA, Animal and Plant Health Inspection Service, FADDL, Box 848, Greenport, NY 11944. Tel: (516) 323-2500 ext. 350; Fax: (516) 323-2798.

● OPRR ANIMAL WELFARE EDUCATION WORKSHOPS

The National Institutes of Health, Office of Extramural Research, Office for Protection from Research Risks (OPRR), Division of Animal Welfare, is conducting a workshop with Northern Arizona University and the University of Arizona entitled "Considerations for the Use of Wild Vertebrates in Research." The program will be held on January 12-13, 1995, at the Westward Look Resort in Tucson, Arizona. This workshop will focus on general themes related to the inclusion of native vertebrates in research including:

- Federal and institutional policies and procedures as they relate to the responsibilities of the Institutional Animal Care and Use Committee (IACUC) in considering research on both captive and free-living wild vertebrates.
- Standards for the husbandry and housing of captive wild vertebrates.
- Occupational health considerations with an emphasis on rodent-borne hantavirus.

Registration fee is \$175.00 for the full workshop or \$70.00 daily. For registration information contact Dr. Terry May, Director of Research Administration, Northern Arizona University, P.O. Box 4130, Flagstaff, AZ 86011-4130; Tel: (602) 523-6788; Fax: (602) 523-1075; E-mail: taml@nauvax.ucc.nau.edu or Dr. Susan Sanders, Director, University of Arizona Animal Care, 2205 E. Speedway Blvd., Tucson, AZ 85719. Tel: (602) 621-3454; Fax: (602) 621-3355.

● PRIM&R

On March 12-14, 1995, OPRR, Public Responsibility in Medicine and Research (PRIM&R), and Tufts University School of Veterinary Medicine will present the workshop "Humane Care and Treatment of Animals: Challenges and Changes for the Institutional Animal Care and Use Committee" at the San Diego Princess, San Diego, California. The workshop will focus on revisions to the *Institutional Animal Care and Use Committee Guidebook*, assessment and reduction of pain and distress in animal research, occupational health risks and biohazards, and a host of other regulatory and administrative issues that are central to the successful operation of laboratory animal care and research programs.

Immediately preceding the workshop, Applied Research Ethics National Association (ARENA) will sponsor its annual animal issues meeting on March 12, also at the San Diego Princess.

For registration information, contact Ms. Danielle Demko, Public Responsibility in Medicine and Research, 132 Boylston Street, Boston, MA 02116. Tel: (617) 423-4112; Fax: (617) 423-1185.

● ALTERNATIVES TO THE USE OF LIVE VERTEBRATES IN BIOMEDICAL RESEARCH AND TESTING: A BIBLIOGRAPHY WITH ABSTRACTS

The scientific community, concerned about animal welfare, is sensitive to concerns regarding how and why animals are used in biomedical research and testing to evaluate the toxicological potential of various kinds of substances. Although alternatives to methods based on the use of animals may not satisfy all requirements and needs of the biomedical research and toxicologic testing communities, alternatives to the use of vertebrates are being developed and evaluated for their utility in this regard. Research on such methodologies is aimed at refinement of procedures to reduce pain and discomfort; to reduce the number of animals required to provide scientifically valuable results; and to replace live vertebrates when an alternative methodology can be verified and validated by the scientific community.

The purpose of these quarterly bibliographies on "animal alternatives" is to provide a survey of the literature in a format which facilitates easy scanning. Citations with abstracts or annotations relating to the method are organized under subject categories, such as cell culture or a specific target organ, etc. This publication features citations which in some predominant way deal with methods, tests, assays, or procedures that may prove useful in establishing alternatives to the use of intact vertebrates. Citations are selected and compiled monthly through searching of the appropriate computerized online bibliography databases of the National Library of Medicine, National Institutes of Health.

You may be placed on the mailing list for the bibliography by contacting Dr. Arthur A. Wykes at the following address:

National Library of Medicine, NIH, Specialized Information Services, Office of Hazardous Substance Information, Building 38A, Room 5S-516, 8600 Rockville Pike, Bethesda, MD 20894 USA. Tel: (301) 496-5022; Fax: (301) 480-3537; E-mail: Arthur-Wykes@OCCSHOST.NLM.NIH.GOV or y-Siegel@OCCSHOST.NLM.NIH.GOV

● INTERNATIONAL DIRECTORY OF PRIMATOLOGY 2ND EDITION 1994 ISSN 1064-3826

The Wisconsin Regional Primate Research Center, University of Wisconsin, Madison, has just published the second edition of the *International Directory of Primatology*. The purpose of the directory is to enhance communications among organizations and individuals involved in primate research, conservation, and education. It can be used by primatologists as a desktop working tool or by guidance counselors, educators, librarians, students, and the general public as a guide to primate programs and information resources.

Coverage includes: (1) detailed entries for major primate centers, laboratories, educational programs, foundations, con-

ervation agencies, and sanctuaries; (2) a listing of primates held in zoological gardens worldwide; (3) professional primate societies, including the membership roster of the International Primatological Society; and (4) major information resources in the field. University and college libraries serving students in anthropology, psychology, conservation biology, and zoology will find this directory to be a useful reference tool.

Copies of the 1994 *International Directory of Primatology*, 2nd edition (354 pp., spiral bound) are available in the USA for \$15 each or in other countries for U.S. \$23 each. These prices include postage and handling. To order a copy of the directory, please write us at the address below. Phone, fax, and E-mail orders are welcome. We do not accept credit card orders. Checks should be made payable to: WISCONSIN REGIONAL PRIMATE RESEARCH CENTER. Mail to: Larry Jacobsen, IDP Coordinator, Wisconsin Regional Primate Research Center Library, 1220 Capitol Court, Madison, WI 53715-1299 USA. Tel: (608) 263-3512; Fax: (608) 263-4031; E-mail: library@primate.wisc.edu.

● **MECHANISM-BASED TOXICOLOGY IN CANCER RISK ASSESSMENT: IMPLICATIONS FOR RESEARCH, REGULATION, AND LEGISLATION**

The National Toxicology Program (NTP) will be holding a workshop January 11-13, 1995, at the Omni Europa Hotel in Chapel Hill, North Carolina. The workshop goals are 1) to assess the scientific foundation for using mechanism-based toxicology to address critical issues in risk assessment, 2) to identify and propose solutions to the regulatory problems which may emerge by the use of mechanistic toxicology in conducting risk assessments, and 3) to determine the applicability of mechanism-based toxicology and risk assessment to current legislative issues.

Applications of mechanism-based toxicology to the following issues will be the subject of five workgroups: 1) screening chemicals and setting priorities for carcinogen testing, 2) carcinogen hazard identification, 3) determining dose-response relationships for chemical effects and low-dose extrapolation, 4) species extrapolation, and 5) determining distributions of risk.

For more information or to register to attend and/or participate in the public comment session, please contact: Sandy Lange, NTP Liaison Office, National Institute of Environmental Health Sciences, P.O. Box 12233, Research Triangle Park, NC 27709. Tel: (919) 541-0530; Fax: (919) 541-0295.

● **CALAS/ACTAL ANNUAL CONFERENCE**

The 34th annual conference of the Canadian Association for Laboratory Animal Science/L'association canadienne pour la technologie des animaux de laboratoire will be held June 12-14, 1995, at the Ramada Hotel in Saskatoon, Saskatchewan, Canada. Deadline for submission of abstracts is January 31, 1995. For more information, please contact Dr. Don McKay, CALAS/ACTAL National Office, Biosciences Animal Service, CW 401 Biological Sciences Building, Edmonton, Alberta, Canada T6G 2E9. Tel: (403) 492-5193; Fax: (403) 492-7257; E-mail: DMCKAY@GPU.SRV.UALBERTA.CA ■

Letter to the Editor...

Your newsletter serves an important function of disseminating information on animal welfare issues. That function is compromised, however, by articles such as "The Importance of Animals in Biomedical and Behavioral Research," which appeared in the Summer 1994 issue (V.5 #2). The text of the article borrowed heavily from statements drafted by organizations which oppose animal welfare regulatory reforms. While previous administrations, including the Department of Health and Human Services, have been recruited onto this bandwagon, the obvious bias in such propaganda does not serve your readers well.

It is not true that "virtually every medical achievement of the last century has depended directly or indirectly on research with animals." For example, the elucidation and clinical testing of risk factors for heart disease never depended on the use of animals in any way. Certainly, animal experimenters have not hesitated to try their hands in this area, but their work has been in no way helpful. Similarly, the use of animals in stroke research has clearly impeded progress. As a recent review in *Stroke* indicated, of 25 drugs that reduced the effects of experimentally induced strokes in animals, not a single one worked in humans, and millions of dollars in research funds, not to mention the time and attention of researchers, were wasted in the process.

The second to last paragraph denigrating animal rights advocates is particularly inappropriate. The statement that the majority of physicians "readily accept" the need for animal experiments would certainly have to be rewritten if doctors were polled about specific uses of animals, such as the Draize test, chemical weapons tests, learned helplessness studies, and others.

I presume that this PHS policy statement was not drafted during the current administration. If I am in error, please let me know. Meanwhile, I appreciate that information which is objective and which embraces the spirit of animal protection.

Neal D. Barnard, M.D.
Washington, DC

Dr. Barnard is President of Physicians Committee for Responsible Medicine.

[Ed. note: The policy of the Animal Welfare Information Center is to cooperate with other Federal agencies in disseminating official positions of the United States Government on matters of importance to the American public.]

Upcoming Meetings

The 5th IBC International Conference on Antibody Engineering: New Technology, Application & Commercialization, December 7-10, 1994. La Jolla, CA. Contact: (508) 481-6400.

Scientists Center for Animal Welfare: Current Issues and New Frontiers in Animal Research, December 8-9, 1994. San Antonio, TX. Contact: (301) 345-3500 - Lee Krulisch.

American Society of Zoologists, January 4-8, 1995. St. Louis, MO. Contact: (805) 492-3585.

Society of Toxicology, March 5-9, 1995. Baltimore, MD. Contact: (202) 371-1393.

Public Responsibility in Medicine and Research, March 13-14, 1995. San Diego, CA. Contact: (617) 423-4112.

National Wildlife Federation, March 16-19, 1995. Washington, DC. Contact: (202) 797-6800.

Experimental Biology 95, April 9-13, 1995. Atlanta, GA. Contact: (301) 530-7010 or E-mail: eb@ns1.faseb.org

Animal Transportation Association, April 23-27, 1995. Paris, France. Contact: (903) 769-2267 - Cherie Derouin.

American Society for Microbiology, May 21-25, 1995. Washington, DC. Contact: (202) 737-3600.

Society for Conservation Biology, June 7-11, 1995. Fort Collins, CO. Contact: (303) 491-6714 - Richard Knight, Dept. of Fishery and Wildlife Biology, Colorado State University, Fort Collins, CO 80523.

The Endocrine Society, June 14-17, 1995. Washington, DC. Contact: (301) 571-1802.

11th International Council for Laboratory Animal Science (ICLAS) and 25th Scan-LAS Jubilee Conference on Frontiers in Laboratory Animal Science, July 2-7, 1995. Helsinki, Finland. Contact: +358-0-191 7281, Fax: +358-0-191 7284 - Dr. Tarja Kohila, University of Helsinki, Laboratory Animal Center, POB 17 (Arkadiankatu 7), FIN-00014 University of Helsinki, Finland.

National Association of Federal Veterinarians, July 8-12, 1995. Pittsburgh, PA. (202) 289-6334.

American Veterinary Medical Association, July 8-12, 1995. Pittsburgh, PA. Contact: (708) 605-8070.

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Tim Allen, Editor
D'Anna J.B. Jensen, Production and Layout
Michael Kreger, Assistant Editor
Phone: (301) 504-6212
Fax: (301) 504-7125
Internet: AWIC@NALUSDA.GOV

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